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SOURCE Fizicheskiy Slovar' (Dictionary of Physics), Vol IV, Main Editorial Office for Technical Encyclopedias and Dictionaries, People's Commissariat of Posts and Telegraph.

COMPOSITION OF POBEDIT HARD ALLOY

Pobedit is related to a type of metal ceramics. Wolfram carbide and other component parts make up the composition of the pobedit base. The carbide part goes into solution with the cementing metal. Each type of Pobedit differs from the others in the percentage of component parts, on which depend the variations of the properties: hardness, tensile strength, brittleness, and suitability to particular uses. The chemical composition of some of the groups of Pobedit are given in the appended table.

Pobedit standard is used when working cast iron or brittle metals. Pobedit PB8 is preferable for working all hard steels; it is less sensitive to shock than Pobedit standard. Pobedit alpha, which is sensitive to shock, is suitable for finishing operations on steel. Pobedit Pa21 has still greater tensile strength.

Pobedit is used in metalworking for cutting, wire-drawing, and forming dies. It is used in the mining industry for the manufacture of bits for cutting machines, and in petroleum and geological prospecting industry for teeth on boring bits.

The basic operations for manufacturing Pobedit parts is pressing followed by firing. The technology of the process is complex and has not been fully studied.

The effectiveness of using hard alloys can be evaluated by the following data: Before the use of a hard alloy, the tip of a pneumatic drill wore out in 2 hours; after the use of the hard alloy, it lasted 18 hours. A punch for making 10-millimeter holes was good for 4,000 holes; when the punch was made of hard alloy, it lasted for 14,000 holes. The productive capacity of lathes in some cases has been increased 190 percent.

- 1 -

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Chemical Composition of Some Pobedit Groups

Chemical Composition (%)

| Symbol | Name | W Not less than | Ti | Mo | C Total not less than | Co | Allowances Fe Ni Not more than | Other Nonmetals Total | Including Sulfur | Specific Gravity Not less than | Hardness According to Rockwell C Scale 60 Kg |
|--------|----------|-----------------------|-----|----------|-----------------------------|---------|---|--------------------------|---------------------|---|--|
| PN | Standard | 82.5 | -- | -- | 5.25 | 9.5--10 | 1 0.2 | 0.2 | 0.01 | 14.0 | 86.5 |
| RE8 | PE8 | 84.5 | -- | -- | 5.35 | 7.5--8 | 1 0.2 | -- | -- | 17.1 | 86.5 |
| Pa | Alpha | 77.5 | 7.3 | -- | 6.7 | 7--7.5 | 1 0.2 | 0.2 | 0.01 | 12.0 | 87.5 |
| Pa21 | Alpha 21 | 65 | 17 | 1.5--2.5 | 7.5 | 7.5--8 | 1 0.2 | 0.2 | 0.01 | -- | -- |

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